

TRANSACTIONS
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I. *New Species and Subspecies of Pierinae.* By F. A. DIXEY, M.A., M.D., F.R.S., Fellow of Wadham College, Oxford.

[Read May 6th, 1914.]

PLATES I, II.

THE following forms, some of which appear to be of specific and others of subspecific rank, have been presented at various times to the Hope Collection at Oxford. The types in every case are in the Hope Collection.

1. *Teracolus rogersi*, sp. n. (Plate I, figs. 1-4.)

♂. Exp. al. 35 mm. *Upperside* creamy white; fore-wings with a deep orange apical patch, separated from the rest of the wing by a nearly straight narrow dark band with blurred edges; this band leaves the costa at a point just opposite the outer termination of the cell, and reaches the hind margin at the termination of the first branch of the median vein. Costa and hind margin with a black border, broadened from the termination of the third subcostal to that of the first median vein, elsewhere narrow. The veins within the apical orange patch are black, and the dark broadened border is prolonged inwardly upon them for a short distance. There is a minute black spot at the apex of the re-entrant angle at the outer end of the cell, and a small black patch at the base of the wing,

somewhat prolonged along the inner margin. Fringe darkish opposite the apical patch; elsewhere pale. Hind-wings narrowly bordered with black, a blackish patch at the marginal termination of each branch of the median, of the radial, and of the two subcostal veins, the latter three patches being more or less fused together. A minute blackish streak, representing a submarginal spot, near the border; running between, and parallel with, the third median and radial veins. Base of the wing with a blackish patch, rather larger and more diffused than that of the fore-wing. Fringe pale.

Underside. Fore-wings white; the apical area, which corresponds in size with that on the upper surface, divided into an outer ochreous and inner pale orange band by a series of four minute dusky spots, elongated in a direction parallel with the veins. Discoidal spot somewhat larger and more distinct than on the upper surface. Hind-wings reddish ochreous with a slight dusky clouding in the precostal space, along the posterior half of the cell, and between the median and submedian veins. A bright orange-yellow streak along the costa, and a submarginal series of six diffused dusky spots, each occupying one of the interspaces from the costal to the second median; of these the first (in the costal interspace) is the largest, and the third (in the second subcostal interspace) is almost obsolete. A small squared black spot at the re-entrant angle terminating the cell, bounded internally by a slight diffusion of orange-yellow.

♀. Exp. al. 36-39 mm. *Upperside* pale creamy white; fore-wings with an orange apical patch of nearly the same shade and relative size as in the male. This patch is separated from the rest of the wing by an irregular dark bar, narrow in the middle of its course, but expanding anteriorly into a triangular blotch with its base resting on the costa, and posteriorly becoming fused with a curved submarginal band of dark spots, increasing in size from before backwards, and traversing the middle of the orange patch from the second subcostal to the second median interspace. The costa as far as the apical patch is narrowly bordered with grey, the patch itself is bounded anteriorly and posteriorly with black, the black posterior margin being much thicker than in the male, and less markedly prolonged along the veins, but being similarly narrowed as it leaves the patch and approaches the anal angle. As in the male, the veins crossing the apical patch are black. The black discoidal spots are larger and more conspicuous than in the male; the base of the wings shows a greyish diffusion, and a well-marked dark grey bar runs in the median and submedian interspaces, parallel with the inner border, and ending near the anal angle in a fairly definite dark patch which appears to be in series with the submarginal spots. The fringes are pale reddish, taking a darker

tinge in the region of the apical patch. Hind-wings narrowly bordered with black, a marginal row of dark spots as in the male, the anterior three being fused into a marginal band; a submarginal series of dark spots occupying the interspaces, that in the radial interspace (between the radial and third median veins) being the largest and darkest. The base shows a greyish clouding, which is slightly prolonged towards the anal angle. A minute black discoidal spot present. Fringes pale reddish.

Underside. Fore-wings white; inner four-fifths of cell washed with pale lemon-yellow. Apical patch divided by a row of dark submarginal spots, corresponding to those on the upper side but more discrete, into an outer reddish-ochreous and inner orange-ochreous portion, the contrast between the two tints being much less marked than in the male. The black discoidal spot is not larger than on the upper surface. A pale greyish bar runs parallel with and close to the inner border, ending near the anal angle in a fairly definite dark patch. Hind-wings as in the male, but slightly darker and with a somewhat more pronounced dusky suffusion. The submarginal spots are much larger than in the male. The discoidal dot is very slightly touched with orange. There is an orange streak along the costa, and a pale Indian-red patch at the origin of the median vein.

In both sexes the row of submarginal spots in the median and submedian interspaces of the hind-wing (in the male visible only on the under surface) conforms more nearly to the curved margin of the wing than is usual in this group of *Teracolus*.

1 ♂, 3 ♀ (Taveta), in Hope Collection, Oxford. The male and one of the females were bred by the Rev. K. St. A. Rogers, emerging on August 6, 1905. A second female was captured on August 7, 1905, and a third female on July 16, 1910, both by Mr. Rogers.

The species may be an East African representative of *T. halyattes*, Butl., the type of which came from Natal. *T. halyattes* is regarded by Butler as the dry-season phase of his *Teracolus lais*, the type of which also came from South Africa. The representative of *T. lais* in the Nile district is doubtless *T. ephyia*, Klug, and the present form, intermediate between *T. lais* and *T. ephyia* in geographical position, is in some respects intermediate also in character. One feature that serves to distinguish it from the type of *T. halyattes* is that the submarginal series of spots on the hind-wing tends to form a curve more or less conformable to that of the wing-margin, whereas in *T. halyattes*, as gener-

ally in members of the *achine* group of *Teracolus*, the submarginal series of the hind-wing is sharply bent to a right angle at the level of the third median branch. In those specimens that I have examined, the males of *T. lais* and *T. rogersi* can be distinguished by their plume-scales. These are nearly of the same size in the two forms, but in *T. lais* the sides of the lamina proximally to the apex are almost parallel, whereas in *T. rogersi* they tend to converge towards the spring of the fimbriae. The plume-scales of *T. ephyia* have their sides usually parallel, as in *T. lais*, but they are smaller, and generally much narrower in proportion to their length.



FIG. 1.



FIG. 2.



FIG. 3.

T. lais, Butl. $\times 310$. *T. rogersi*, n.sp. $\times 310$. *T. ephyia*, Klug. $\times 310$.

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2. *Belenois victoria*, sp. n. (Plate II, figs. 5–8.)

♂. Exp. al. 55 mm. *Upperside* white; a slight greyish dusting close to the body. Costa of the fore-wing very narrowly edged with black. A black apical patch, continued as an irregular black border along the hind margin. The irregularity of the border is chiefly due to a marked projection inwards between the second and third median branches, the border at this point filling about the outer two-fifths of the interspace indicated. The marginal ends of the first median branch and of the submedian vein are marked by black spots, prolonged for a short distance inwards. The former of these spots is large, and fuses with the black border. The latter spot is smaller and may remain distinct, or may be connected with the dark border by an intermediate dusting of grey. At the outer end of the cell is a large roundish black spot, covering the second discocellular vein. This spot may be entirely isolated, or may be connected with the dark edging of the costa by a dusky curved band, more or

less developed, following the outer and anterior margin of the cell, and so having its concavity directed towards the root of the wing. Some or all of the interspaces between the veins which traverse the dark apex and hind border are marked by a powdering of white scales, generally very indistinct, but in the space between the fourth subcostal branch and the first radial vein assuming the appearance of a definite white spot. The hind-wing may be entirely immaculate, or may have the marginal ends of the veins marked with black points.

Underside. Fore-wing white; the costa slightly edged with greyish yellow. Apical patch, corresponding in extent with that of the upper surface, of the same greyish yellow, bordered inwardly with a slightly festooned streak of pale fawn-colour. A dark spot more or less developed, in the second median interspace, corresponds in position with the inward projection of the dark hind border above. The spot on the second discocellular vein corresponds with that on the upper surface, but is of a less intense black; there may or may not be a trace of the curved dusky band connecting it with the costa. In some specimens there is a slight yellow shade at the root of the wing.

The hind-wing is of a greyish yellow like the apex of the fore-wing. There is a streak of vivid orange along the whole length of the costa, broadest near the body, and reaching as far as the marginal end of the first subcostal branch; a short streak of the same colour occupies the root of the interspace between the median and submedian veins. The remaining marks are of the same pale fawn-colour as that bordering the apical patch of the fore-wing. They consist of a slight accentuation of the veins with their branches, broadening into a patch on the second discocellular, and including the vestigial vein between the median and submedian and that within the cell; including also a patch between the origins of the first and second median branches and another patch adjoining it internally; a series of submarginal spots in the interspaces, those from the second subcostal to the submedian vein taking an arrow-head form with the points directed inwards; and, finally, a series of linear spots at the marginal ends of the veins and their branches, parallel with the margin, and occasionally fused into a narrow marginal band.

♀. Exp. al. 53 mm. *Upperside.* Fore-wing white; hind-wing varies from white through primrose yellow to deep yellow ochre. Dark markings as in the male, but more pronounced. Fore-wing, costal edging broader, apical black continued along hind margin as far as anal angle; no separate marginal spots; no white dusting in interspaces; the black spot on the second discocellular joined to

the costa by a broad dusky band which may occupy the anterior half of the cell. Marginal spots of the hind-wing much larger than in the male.

Underside as in the male, but with a conspicuous orange flush at the base of the fore-wing, extending over the proximal two-thirds of the cell, and showing faintly through on the upper surface.

29 ♂♂, 4 ♀♀ (Tiriki, Victoria Nyanza; and Toro, W. Uganda), in the Hope Collection, Oxford.

Fourteen of the males and all four females were captured by Mr. C. A. Wiggins in the Tiriki Hills, N.E. of the Victoria Lake, during February and March 1903. Fifteen males (also presented by Mr. Wiggins) were taken by native collectors in the Toro country, on the eastern slopes of Ruwenzori, in November and December 1900. These are all recorded by Mr. S. A. Neave, under the head of *Beleuois zochalia* f. *formosa*, Butl., in *Novitat. Zoolog.* vol. xi, 1904, p. 358.

This is a very distinct form of the *Beleuois zochalia* group. It is easily distinguished from *crawshayi*, Butl., *tanganyikae*, Lanz (*formosa*, Butl.), and *diminuta*, Butl., by the darker apex and border of the fore-wing, from which the white spots have almost disappeared in the male and have entirely vanished in the female; the nearly immaculate white or yellow of the hind-wing; but especially by two features of the under surface, viz. the great prolongation of the orange costal streak, and the general character of the dark markings on the hind-wing. In the other forms of the *B. zochalia* group, these latter markings are linear, looking as if they had been drawn with a pencil or stiff brush. When they become faint or disappear, as in *B. diminuta*, they do so by attenuation and curtailment. In *B. victoria* they look as if they were made with a soft brush, and they become faint by gradually melting, without diminution of size, into the ground-colour of the wing.

In the National Collection there are three males of this form, two from Mount Elgon and one from Toro. They are ranked as *B. formosa*, but differ in the points stated from the type of *formosa* beside them.

Among the African forms of the genus *Nychitona*, Butl., (*Leptosia*, Auriv.), there is a race or subspecies first known to me by four specimens from the region of the Victoria Nyanza, presented to the Hope Collection by Mr. C. A. Wiggins. The series consists of two males from the Toro country on the eastern slopes of Ruwenzori, captured by natives in November or December 1900; and two females, one captured by Mr. Wiggins at Entebbe on the N.W. shore of the lake on April 8, 1903, and the other caught by a native in the Ugaia country, south of the Kavirondo gulf, in January 1903. These specimens differ in some respects from all forms of *Nychitona* hitherto described, but may be considered as a subspecies of *N. medusa*, Cram.

3. *Nychitona wigginsii*, subsp. n. (Plate III, figs. 9-12.)

♂. Exp. al. 46 mm. *Upperside* dead, opaque white, with a very faint greenish-yellow tinge; not semi-translucent as in some other forms of *Nychitona*. Fore-wings with slight fuscous mottling along the costa, reaching from the body to a point opposite the origin of the first branch of the subcostal. A dark fuscous apical crescentic patch, slightly waved on its inner aspect but not indented as in most other forms of *Nychitona*, beginning at a point on the costa nearly opposite the origin of the second subcostal branch, and ending on the hind margin in the interspace between the first and second median branches. Hind-wings bordered with a very narrow dark line, the centre of each interspace marked on the border by a minute dark spot. There is no other marking on the upper surface of either fore or hind-wing, but the mottling of the under surface shows faintly through.

Underside white; a dull green mottling filling the basal half of the cell, and prolonged on the costa as far as the termination of the first subcostal branch. A similar mottling on the apical area corresponds to the dark crescentic patch on the upper surface, and is also found over the whole of the hind-wing. This mottling of the hind-wing is scattered generally over the surface of the wing, and shows little or no tendency to fall into the parallel streaks which are conspicuous in some other forms of *Nychitona*.

♀. Closely resembles the male in size and aspect. In both sexes the tint and texture of the upper surface give an aspect which is conspicuously different from that of other forms of *Nychitona*.

The marked resemblance of this form to the curious *Leuceronia pharis*, Boisd., which also occurs in the Ugaia

country, and probably in the Toro district, was commented on by me in *Trans. Ent. Soc. Lond.*, 1908, p. 569. I may here be allowed to mention that the statements there made had reference to the present form of *Nychitona* only, and not, as has been supposed, to other forms, such as that named *immaculata* by Aurivillius, more or less closely resembling it.

4. *Hesperocharis longstaffi*, subsp. n. (Plate II, figs. 1-4.)

♂. Exp. al. 52 mm. *Upperside*. Fore-wings very pale chrome yellow, passing gradually into pale ochreous at the apex. Fuscous scales form a very narrow edging to the costa, and are collected about the marginal terminations of the subcostal and median branches, and of both radial veins, appearing in this situation as a series of small ill-defined triangular spots, fused at the apex of the wing by their bases, and diminishing in size along the posterior border; a fuscous line, belonging partly to the fringe, extends from the apex to the termination of the first median branch. Hind-wing, pale ochreous like the apex of the fore-wing, becoming lighter towards the costa and deepening slightly towards the hind and inner margin. Anal angle somewhat prolonged.

Underside. Fore-wings dead white; apex pronounced yellow ochre. A very slight fuscous edging to the outer two-thirds of the costa, prolonged for a short distance round the apex. A small, ill-defined fuscous spot on the costa, just proximal to the origin of the second branch of the subcostal. Hind-wings, rich yellow ochre, deepening on the costa, which is narrowly edged with fuscous throughout its whole extent except a very small portion near the body. A series of four fuscous spots runs almost parallel with the costal and hind margin, the first two actually on the costa, the third barely touching it, and the fourth a little distance inwards from the hind border. These spots, which have a purplish tinge from contrast with the general yellow of the wing, are situated respectively on each side of the costal vein, in the interspace between the two branches of the subcostal, and in that between the lower subcostal and radial. The first two are the most intense in colour, the fourth distinctly fainter, the second and third are the largest. There is a

fifth spot, similar to the fourth of the preceding series, but smaller, just internal to the origin of the first median branch. The ventral part of the thorax shares in the rich ochreous colour of the hind-wings.

♀. Exp. al. 60 mm. (Another ♀ in Coll. Hope, 57 mm.) *Upper-side* of both wings a bright canary yellow, somewhat deeper on the hind-wing and at the apex of the fore-wing. A narrow fuscous edging and apical spots as in the male. *Underside* as in the male except that the dead white of the fore-wing is replaced by canary yellow, and that the fuscous spots on the fore-wing and between the second subcostal and radial of the hind-wing may be absent.

In the male the fore-wing has a sharp apical angle, and the posterior margin is slightly concave. In the female the apex is more rounded, and the posterior margin is nearly straight. The hind-wing in the female has the anal angle slightly prolonged, but less so than in the male.

1 ♂, 2 ♀♀ (Venezuela), in Hope Collection, Oxford.

All three specimens were captured by Dr. G. B. Longstaff; the male and one female on January 9, 1913, at an altitude of about 1300 ft., below Zigzag Station, La Guaira, Venezuela; the second female on January 11, 1913, at about 1000 ft., between Curatici and Zigzag.

The present is the Venezuelan form of the group containing *H. jaliscana*, Schaus (Mexico), *H. lenoris*, Reak. (Mexico), *H. idiotica*, Butl., and *H. crocea*, Bates (Costa Rica). The earliest-named of the group appears to be *H. crocea*, which is probably indistinguishable from *H. lenoris*, as remarked by Godman and Salvin (Biol. Centr.-Amer., Rhopalocera, vol. ii, pp. 127-8). *H. idiotica* may be the same; the locality of the type is unknown.

H. longstaffi is distinguished from *H. crocea* by the absence of orange suffusion on the upper surface of the hind-wing; Dr. Longstaff's specimens differ from co-types of *H. jaliscana* by the deeper colour in both sexes, by the fainter development of the fuscous markings at the apex of the fore-wing, and by the much greater prominence of the dark costal spots on the under surface of the hind-wing.

A male *Pieris* was captured by Dr. G. B. Longstaff, at an elevation of about 1300 ft., between Zigzag Station and the port of La Guaira, Venezuela, on March 29, 1907. This capture is recorded in his book, "Butterfly Hunting in Many Lands," 1912, p. 320, and the specimen is well figured on Plate III, figs. 1, 2 of the same volume. At the same place, on January 11, 1913, Dr. Longstaff caught, together with specimens which appear to be referable to *P. sevata*, Feld., a female Pierine which I believe to be conspecific with the male above mentioned. These two specimens were referred to by me in Proc. Ent. Soc. Lond., 1913, pp. cxiii, cxiv, and are here described under the name of *Pieris janeta*.

5. *Pieris janeta*, sp. n. (Plate II, figs. 5, 6.)

♂. Exp. al. 62 mm. *Upperside* white with a slight but distinct greenish tinge. A slight fuscous edging to the costal and posterior margin, expanding somewhat at the apex, and prolonged nearly to the anal angle. A somewhat paler fuscous streak fills the space between the costa and costal vein for about two-thirds of the distance from base to apex. Fore-wing otherwise immaculate. Conspicuous streaks of roughened texture, dead white in colour, accompanying both sides of the submedian vein, of the median trunk from the origin of its first branch to that of its third, and of the median branches themselves. They are also found on both sides of the lower, and on the inner, or posterior, side of the upper radial and of that part of the subcostal trunk from which the upper radial originates, on the outer side of the two discocellular veins, and finally as a small patch in the upper and distal angle of the cell. The streaks generally fuse together at the root of each interspace, but in the interspace between median and submedian they remain distinct, neither streak reaching inwards as far as the median trunk. Hind-wing immaculate; roughened streaks like those on the fore-wing accompanying the subcostal and median veins. Third branch of subcostal in fore-wing very short.

Underside: fore-wings generally dull white; dead white where the roughened streaks show through from the upper surface. Apex and costa pale ochreous. Hind-wings uniformly ochreous, of a somewhat deeper shade than the apex of the fore-wing; a fuscous spot, like that in the female, occupying the angle between the lower discocellular and third branch of the median vein. The costa thinly edged with bright yellow; a minute spot of the same at the root of the subcostal vein.

♀. Exp. al. 60 mm. *Upperside* dull creamy white; not tinged with greenish, as in the male. Fore-wing with a fuscous shade along the costa, filling the space between the costa and the subcostal vein at the base, and for rather more than half the length of the cell. This shade is continued distally as a narrowing line along the costa as far as the apex, where it fuses with a fuscous apical patch, small in extent and prolonged as a narrow tapering band along the posterior margin as far as the first branch of the median vein. A few fuscous scales on the lower discocellular vein. Hind-wing



FIG. 4.

P. janeta, n. sp. × 120.

FIG. 5.

P. sevata, Feld. × 120.

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immaculate. Anal angle slightly prolonged. The third branch of the subcostal in the fore-wing appears to be absent.

Underside: fore-wing dull white, apex and costa pale greyish ochreous. Hind-wing pale ochreous with a slight pinkish shade; a fuscous spot 1–2 mm. in diameter, close to the lower discocellular vein, in the interspace between the third median branch and the radial. The costa edged with deep yellow; a minute spot of the same at the root of the subcostal vein.

The male of *P. janeta* is easily distinguishable from the male of *P. sevata* by the character and distribution of the scent-scales. These in *P. janeta* are on an average more than half as long again as in *P. sevata*. Moreover, in *P. sevata* the mealy streaks formed by these scales fuse along the

inner or posterior side of the median vein proximally to the origin of the first median branch; in *P. janeta* the area indicated is free from scent-scales (see Proc. Ent. Soc. Lond., *loc. cit.*, where "submedian" should be read for "internal").

P. janeta may perhaps be a subspecies of *P. sincera*, described by Weymer (Reiss und Stübel, Reisen in Süd.-Amerika, 1890, p. 123; Taf. III, fig. 19), from a male specimen captured on the sea-level at Guayaquil, Ecuador. But it differs in several particulars from Weymer's figure and description.

6. *Pieris howarthi*, sp. n. (Plate II, figs. 7-10.)

♂. Exp. al. 58 mm. *Upperside* dull white very slightly tinged with green. Fore-wing with pale fuscous spots on the apex and along the hind-margin, at the extremities of the branches of the subcostal (except the first), of the two radials and of the branches of the median; the first and last of these spots being represented only by a few fuscous scales. A conspicuous dark fuscous spot on the lower discocellular. Conspicuous streaks of roughened texture, dead white in colour, accompanying both sides of the first and second median branches and of the submedian vein; also the inner side of the third median and of the median trunk from the origin of the first branch to that of the third. Beneath, the fore-wing is dull white, the apical region pale fuscous. The discocellular spot is larger than on the upper surface, and of a less deep fuscous shade. The roughened areas of the upper surface show through as dead white streaks. There are traces of a pale fuscous discal spot on each side of the third median, and above the second median, in each case about half-way between the cell and the margin of the wing.

The hind-wing is immaculate above, and shows no roughened streaks. Beneath, it is of a pale yellow ochre, plentifully besprinkled with pale fuscous scales like those of the fore-wing. These are more closely set in some places than in others, forming a brownish shade over the base of the wing; this shade occupies most of the space between the costal and first subcostal branches, a quarter or more of the subcostal interspace, and nearly the whole of the cell, stopping just short of the lower discocellular. Outside the cell it accom-

panies the inner side of the median trunk and first median branch, but leaves free the greater part of the course of the submedian vein. In the angle between the median trunk and the first median branch, it passes into a curved band which takes its course round the end of the cell, turns forward, and becomes lost on the lower aspect of the second subcostal. The fuscous shade is somewhat deeper just anteriorly to the third median branch than elsewhere, but it does not form a definite spot. A much paler fuscous infusion forms a broad marginal shading to the wing. There is a minute dark fuscous spot on the lower discocellular, close to the origin of the radial; the costa is edged with rich orange, prolonged along the margin as a narrowing streak as far as the end of the first subcostal. A spot of the same colour occupies the root of the subcostal at its junction with the body.

♀. Exp. al. 52 mm. (Another ♀ measures 54 mm.) *Upper-side* white tinged with greenish yellow. Fore-wing with a slight duskiess along the costa, which opposite the end of the cell passes into a definite dark streak reaching to the apex. The extremities of the veins along the hind margin marked, as in the male, with fuscous spots; these diminish from before backwards; no spot on the submedian vein. A dark fuscous spot, larger than in the male, occupies nearly the whole of the lower discocellular vein; and dark discal spots, similar in character and situation to those on the lower surface in the male, but more pronounced, occur in connection with the second and third median branches. The series is continued by another smaller spot internal to the first median branch. Hind-wing immaculate except for a minute dark spot on the lower discocellular vein.

Beneath, the fore-wings are white, tinged with the same greenish yellow as on the upper surface; but even paler, especially towards the inner margin. The apical area is ochre yellow dusted with yellowish brown. The same brownish dusting is continued inwardly as an ill-defined streak along the costa, but dies out before reaching the body. Within the apical area it collects chiefly at the marginal ends of the veins, forming indistinct spots which are prolonged as a diminishing series as far as the termination of the first median. A further condensation of brownish or fuscous scales forms a patch at the inner end of the apical area where this meets the costa. This patch is in series with dark discal spots occupying corresponding situations with those on the upper surface; the last of them is marked only by a few brown scales. A dark oval spot, larger than the corresponding spot on the upper surface, occupies the lower discocellular vein. The ground-colour of the hind-wings is the same as that of the apical area of the fore-wings, viz.

yellow ochre. Like the latter area it is plentifully dusted over with yellowish brown scales. These form a deep shade over the basal half of the wing, terminating distally by a curved edge running nearly parallel with the wing-margin, and leaving a small area of the yellow ground-colour at and beyond the end of the cell. Broad rays of a paler shade of yellowish brown accompany the distal portions of the veins as they traverse the yellow marginal area. The veins themselves, with their branches, share in the ochre yellow of the ground-colour. There is a conspicuous dark brown spot, larger



FIG. 6.

P. howarthi, n. sp. $\times 120$.

FIG. 7.

P. josepha, Godm. & Salv. $\times 120$.

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than that of the upper surface, on the lower discocellular vein, close to the origin of the radial. The costa is edged with rich orange, and the same colour is prolonged round the base of the wing as far as the origin of the subcostal vein.

The third subcostal branch of the fore-wing is present in a rudimentary form on the right side of the male type and both sides of the female type. It appears to be absent from the left side of the male type, and from both sides of another female in the Hope Collection.

1 ♂, 2 ♀♀ in Hope Collection, Oxford. These were captured on the sea-level, at Tembabichi Bay, Lower

